

This listing of claims replaces all prior listings of claims.

Claims 1 -58 (canceled)

Claim 59 (previously presented) A process for preparing a partially protected procyanidin dimer which comprises the steps of:

(a) protecting each phenolic hydroxyl group of an epicatechin or a catechin monomer;

(b) activating the monomer from step (a) by introducing an acyloxy group at the 4 position; and

(c) catalytically coupling the monomer from step (b) with an unprotected epicatechin or an unprotected catechin monomer, optionally having an 8-halo blocking group, to form a partially protected procyanidin dimer wherein the top mer is protected.

Claim 60 (previously presented) The process of Claim 59, wherein the unprotected monomer of step (c) has no 8-halo blocking group and wherein the partially protected dimer has a 4→8 linkage.

Claim 61 (previously presented) The process of Claim 59, wherein the monomer of step (c) has an 8-halo blocking group and wherein the partially protected dimer has a 4→6 linkage and a 8-halo group on the bottom mer.

Claim 62 (previously presented) The process of Claim 59, wherein the protecting groups are the benzyl groups and wherein the protecting step is carried out with benzyl bromide in dimethyl formamide or dimethyl acetamide.

Claim 63 (previously presented) The process of Claim 59, wherein the protecting groups are the p-methoxy benzyl groups and the protecting step is carried out with p-methoxybenzyl in dimethyl formamide.

Claim 64 (previously presented) The process of Claim 62, wherein the protecting step is carried out in the presence of potassium carbonate or potassium ~~iodide~~ iodide.

Claim 65 (previously presented) The process of Claim 59, wherein the activating step is carried out using as an oxidizing agent a lead salt selected from the group consisting of lead acetate, lead formate, and lead propionate in a solvent selected from the group consisting of benzene, toluene, chlorobenzene, cyclohexane, heptane, carbon tetrachloride, and mixtures thereof.

Claim 66 (previously presented) The process of Claim 65, wherein the lead acetate is used in combination with acetic acid; wherein the lead formate is used in combination with formic acid; wherein the lead propionate is used in combination with propionic acid; and wherein the solvent in the activating step is benzene-acetic acid.

Claim 67 (previously presented) The process of Claim 59, wherein the catalyst used in the coupling step is a Lewis acid selected from the group consisting of lithium bromide and lithium iodide.

Claim 68 (previously presented) A process for preparing a linear procyanidin oligomer having 4→8 linkages, which process comprises the steps of:

(a) preparing a partially protected 4→8 procyanidin dimer wherein the phenolic hydroxyl groups of the top mer are protected with a removable protecting group which does not deactivate the A ring of the protected mer;

(b) masking the dimer of step (a) with removable masking groups which deactivate the bottom mer to form a dimer wherein the phenolic hydroxyl groups of the top mer are protected, wherein the phenolic hydroxyl groups of the bottom mer are masked, and wherein the hydroxyl groups at the 3 positions of both mers are masked;

(c) deprotecting the dimer of step (b) to form a dimer wherein the phenolic hydroxyl groups of the top mer are unprotected, wherein the phenolic hydroxyl groups of the bottom mer are masked, and wherein the hydroxyl groups at the 3 positions of both mers are masked;

(d) catalytically coupling the dimer of step (c) with a protected catechin monomer or a protected epicatechin monomer having an acyloxy activating group at the 4 position to form a 4→8 trimer

wherein the phenolic hydroxyl groups of the top mer are protected, wherein the phenolic hydroxyl groups of the middle mer are unprotected, wherein the phenolic hydroxyl groups of the bottom mer are masked, and wherein the hydroxyl groups at 3 positions of the middle and the bottom mers are masked.

Claim 69 (previously presented) The process of Claim 67, further comprising the step(s) of demasking and/or deprotecting the trimer of step (d).

Claim 70 (previously presented) The process of Claim 68, which process further comprises the steps of:

(e) masking the trimer of step (d) to form a trimer wherein the phenolic hydroxyl groups of the top mer are protected, wherein the phenolic hydroxyl groups of the middle and bottom mers are masked, and wherein the hydroxyl groups at the 3 positions of all the mers are masked;

(f) deprotecting the trimer of step (e) to form a trimer wherein the phenolic hydroxyl groups of the top mer are unprotected, wherein the phenolic hydroxyl groups of the middle and bottom mers are masked, and wherein the hydroxyl groups at the 3 positions of all the mers are masked;

(g) catalytically coupling the trimer of step (f) with a protected catechin monomer or a protected epicatechin monomer having an acyloxy activating group at the 4 position to form a partially protected 4→8 tetramer; wherein the phenolic hydroxyl groups of the top mer are protected, wherein the phenolic hydroxyl groups of the middle and bottom mers are masked, and wherein the hydroxyl groups at the 3 positions of the middle and bottom mers are masked;

(h) optionally repeating the masking, deprotecting, and coupling steps to form a higher oligomer.

Claim 71 (previously presented) The process of Claim 70, further comprising the step(s) of demasking and/or deprotecting the tetramer of step (g) or higher oligomer of step (h).

Claim 72 (previously presented) The process of Claim 70, wherein the higher ~~oligomer includes~~ oligomers include tetramers through dodecamers.

Claim 73 (previously presented) The process of Claim 70, wherein the higher oligomers include pentamers.

Claim 74 (previously presented) An improved process for benzylating the phenolic hydroxyl groups of a catechin or an epicatechin monomer by reacting the monomer with benzyl bromide, wherein the improvement comprises carrying out the benzylation in dimethyl acetamide.

Claim 75 (previously presented) The process of Claim 73, wherein the benzylation is carried out in the presence of potassium carbonate or potassium iodide.

Claim 76 (previously presented) The process of Claim 75, wherein the monomer is (+)-catechin.

Claim 77 (previously presented) The process of Claim 75, wherein the monomer is (-)-epicatechin.

Claim 78 (previously presented) The process of Claim 74, further comprising the step of isolating the tetra-O-benzyl-(+) catechin or the tetra-O-benzyl(-)-epicatechin by crystallization

Claim 79 (previously presented) A process for preparing a branched procyanidin trimer which comprises coupling, in the presence of a Lewis acid, a C-4 activated, benzyl-protected catechin or benzyl-protected epicatechin monomer with a partially protected catechin and/or epicatechin dimer wherein the top mer is benzyl-protected and wherein the bottom mer is unprotected to form the partially protected branched trimer wherein the first and third mers are protected the middle mer is unprotected.

Claim 80 (previously presented) The process of Claim 79, wherein the C-4 activated, benzyl-protected monomer is 4 β -acetoxy-tetra-O-benzyl-(+)-catechin or 4 β -acetoxy-tetra-O-benzyl(-)-epicatechin and wherein the partially protected dimer is tetra-O-benzyl-(+)-catechin-(4 α \rightarrow 8)-(+)-catechin, tetra-O-benzyl-(+)-catechin-(4 α \rightarrow 8)-(-)-epicatechin, tetra-O-benzyl(-)-epicatechin-(4 β \rightarrow 8)-(-)-epicatechin, or tetra-O-benzyl(-)-epicatechin-(4 β \rightarrow 8)-(-)-catechin.

Claim 81 (previously presented) The process of Claim 79, wherein the C-4 activated, benzyl-protected monomer is 4 β -acetoxy-tetra-O-benzyl-(+)-catechin; wherein the partially dimer is tetra-O-

benzyl-(+)-catechin-(4 α →8)-(-)-epicatechin; and wherein the branched trimer is tetra-O-benzyl-(+)-catechin-(4 α →8)-(-)-epicatechin-(6→4 α)-tetra-O-benzyl-(+)-catechin.

Claim 82 (previously presented) The process of Claim 79, further comprising the step of deprotecting the branched trimer.

Claim 83 (previously presented) The process of Claim 81, further comprising the step of deprotecting the branched trimer to give (+) catechin-(4 α →8)-(-)-epicatechin-(6→4 α)-(+)-catechin.

Claim 84 (new) A process for preparing a procyanidin dimer, which process comprises the steps of:

(a) protecting each phenolic hydroxyl group of a catechin monomer or an epicatechin monomer with a removable protecting group which does not deactivate the A ring of the monomer;

(b) optionally blocking the C-8 position of the monomer of step (a) with a halo group;

(c) activating the monomer of step (a) or step (b) by introducing at the C-4 position an acyloxy group selected from the group consisting of acetoxy, formyloxy, and propionyloxy using a lead (IV) salt which is selected from the group consisting of lead tetraacetate, lead tetraformate, and lead tetrapropionate; and

(d) catalytically coupling the monomer of step (c) with an unprotected catechin monomer or an unprotected epicatechin monomer.

Claim 85 (new) The process of Claim 84, wherein a solvent is used in the activating step.

Claim 86 (new) The process of Claim 84, wherein the solvent is selected from the group consisting of benzene, toluene, chlorobenzene; cyclohexane, heptane, carbon tetrachloride, and mixtures thereof with an organic acid.

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Claim 87 (new) The process of Claim 86, wherein the activating step is carried out using the mixtures with the organic acid.

Claim 88 (new) The process of Claim 87, wherein the organic acid is the same as the acid used for making the lead salt.

Claim 89 (new) The process of Claim 88, wherein the organic acid is formic, acid acetic acid, or propionic acid.